

Remarks

The present Amendment amends claims 4, 9-11, 14, 16, and 17, cancels claims 7, 8, and 15, and adds claims 22, 23, and 24. Accordingly, the application includes twenty (20) total claims, of which three (3) are in independent form (claims 11, 17, and 24). Applicant expects no claim fees being due upon submittal of this Amendment. With the three month extension for filing this Amendment, Applicant hereby submits the fee of \$510. For any other fees which are deemed necessary following submittal of this Amendment, the undersigned hereby authorizes such fees to be charged to our deposit account, Deposit Account No. 061910.

In the Office Action, claim 4 is rejected under 35 USC 112, second paragraph as it is unclear to the Examiner how the sealing face can be convex as required in claim 11 as well as diverging in claim 4. This rejection is respectfully traversed as what is provided by claims 4 and 11 is not that the "sealing face" is both "convex" as well as "diverging", but instead, that the closure head (e.g., referenced as 6 in FIGS. 2, 3, and 7; 106 in FIG. 4; and 104 in FIGS. 5 and 6), of which the sealing face is a portion, has both convex and diverging portions.

As described in the specification, in certain embodiments, the "surface of the closure head 6 which comes into contact with the mouth of the duct 7 is slightly rounded", thereby favoring contact with the mouth and flow of the liquid [Para. 0033; FIGS. 1-3]. The "sealing face", as included in claims 11 and 4, involves the contacting and encompassed surfaces of the closure head surface 6 (cited above). Because the "sealing face", in certain embodiments, is "slightly rounded" (as cited above), the "sealing face" is claimed as being convex "with respect to the first duct" in new claim 21. In addition, with reference to FIG. 2, the closure head 6 has a taper, by which "it diverges from the [central] core 5 [of the closure member 4]"... by "between 20° and 45°..." [Para. 0035; FIG. 3]. Applicant feels claim 4, as presented, provides this relationship; however, in an effort to further advance prosecution of the application, claim 4 has now been amended, replacing "...diverging toward the sealing face..." with "...diverging from the central core...". As such, Applicant respectfully asserts that Examiner's 112 rejection of claim 4 has been overcome.

In the Office Action, claim 15 is also rejected under 35 USC 112, second paragraph as it is unclear to the Examiner how a reciprocating valve that has a fixed diaphragm can also be rotatable. In the specification, it is stated that “[b]oth of the foregoing embodiments considered can also be used in an inverted position with respect to that in which they are shown in the drawings [FIGS. 1-4]; for example, these valves may be applied to the bottom of a tank containing a liquid” [Para. 0068; FIGS. 5 and 6]. In certain embodiments, as provided in claim 11, the valve is an assembly including a body, a closure member, and a flexible circular disc. In turn, as the valve is selectively rotatable by 180°, these parts of the valve, in turn, can be collectively inverted. The features of the invention enable the valve to be so rotated while still preventing collection of fluid in the chamber (regardless of valve position) when the closure member head is in a closed position. With respect to the Examiner’s point, even if the flexible circular disc is “peripherally fixed to inner surfaces of the chamber” (as provided in claim 11), the entire valve assembly is designed to be selectively rotatable, which enables the fixed circular disc to be rotated (e.g., to an inverted position) in unison with the rest of the valve. Claim 15 has now been cancelled, but its features have been included in now-amended claim 11. In light of the above, Applicant respectfully asserts that any future 112 rejection of amended claim 11, now incorporating certain language of prior claim 15, is overcome.

In the Office Action, the Examiner rejects claims 2, 3, 5, 7, 11, 12, and 16-21 as well as claims 4 and 15 as far as they are definite, under 35 USC 102(b) as being anticipated by US Patent No. 3,134,570 (Jarrett); and rejects claims 6 and 13 under 35 103(a) as being unpatentable over Jarrett in view of US Patent No. 4,826,132 (Moldenhauer). Applicant respectfully traverses the 102(b) rejections with respect to Jarrett and the 103(a) rejections based on Jarrett in combination with Moldenhauer. However, to further advance prosecution of the application, Applicant has amended claims 11 and 17, as discussed below.

The present invention provides a shut-off valve including a number of features that are shown neither solely nor collectively in the cited art. For example, in certain embodiments of the present invention, as reflected in amended claim 11, a closure member of the valve includes a head oriented toward a first duct of the chamber, with such head having a convex sealing face

with respect to the first duct. In turn, the convex sealing face at least partially enters an inner opening of the first duct in a closed position of the closure member. In addition, a disc is integrally formed with the closure member head and extends to outer surfaces of the chamber, whereat outer edges of the disc are fixed. In the closed position of the closure member, the disc is in a tangential orientation with respect to the chamber. The valve is configured to operate in at least two positions, including a first valve position where the head is above an inner opening of the first duct in an open position of the closure member and a second valve position where the head is below the first duct inner opening in an open position of the closure member. The tangential orientation of the disc in the closed position of the closure member prevents collection of fluid within the chamber regardless of whether the valve is in the first position or in the second position. Therefore, amended claim 11 claims a shut-off valve having features that are believed by Applicant to not be taught or suggested by Jarrett.

For example, Jarrett neither teaches nor suggests a valve having a closure member with disc integrally formed therewith which is in a tangential orientation with the valve chamber in a closed position of the closure member. Instead, FIG. 1-3 of Jarrett shows the diaphragm 16 or 16a to be curved, and more particularly, curving away from valve chamber 15 or 15a so as to form an outer border or boundary of the valve chamber. This is an important distinction from Applicant's invention because this curvature of the diaphragm 16 or 16a provides a place where residual liquid can settle if the valve is positioned in the second valve position, as provided in claim 11, where the head is below the first duct inner opening in an open position of the closure member. In turn, the valves taught by Jarrett would fall short of preventing collection of fluid within the chamber in both the first and second valve positions, as provided in claim 11.

Therefore, Applicant believes new claim 11 is patentable over Jarrett. In turn, the rejections under Section 103(a) with respect to Jarrett in view of Moldenhauer are traversed as well, particularly since Moldenhauer appears to be cited only for its description of having the closure member made of a flexible plastic. As such, Moldenhauer does not remedy the above-described defects in Jarrett with respect to claim 11. Consequently, upon a finding of allowance

for such claim 11, the underlying dependent claims, claims 2-6, 12-16, and 21 are allowable as well.

Independent claim 17 has been amended to address the Examiner's comments regarding the recitation of "upward". As noted, the Examiner states that the use of such a term is relative and does not limit the claims. However, claim 17 has been amended to further describe the use of the valve. This is initially done by amending the preamble from "...valve..." to "...valve used at a bottom of a tank containing a liquid...". Further, the first element of the claim is amended, with "...the inlet duct extending upwardly from the body to the bottom of the tank...". In so doing, Applicant respectfully asserts that use of "upward" has been modified so as to not be interpreted in a relative sense. As should be appreciated, claim 17 describes a valve generally in "the second position", as already described and discussed herein with respect to claim 11. Consequently, for the same reasons described above with respect to such "second valve position" in claim 11, claim 17 is patentable over Jarrett (and/or Moldenhauer). Upon a finding of allowance for such claim 17, the underlying dependent claims, claims 18-21 and 23 are allowable as well.

New independent claim 24 contains the features of previous claims 11, 7, and 8, which were found to be collectively patentable by the Examiner. In turn, upon a finding of allowance for such claim 24, the underlying dependent claims, claims 9-10 are allowable as well.

Applicant believes that no new matter will be introduced by entry of these new and amended claims and that such are fully supported by the specification and application as a whole. Applicants have added and amended the claims solely to advance prosecution of this application and to obtain the allowance of claims at the earliest possible date. No admission should be inferred by these amendments. Applicants reserve the right to prosecute the originally filed claims in a continuation application.

In light of the above, applicants submit that the present rejections should be withdrawn. If the Examiner feels that prosecution of the present application can be materially advanced by a telephonic interview, the undersigned would welcome a call at the number listed below.

Respectfully submitted,

/John S. Parzych/

John S. Parzych
Reg. No. 52,097
(612) 492-7279

Customer No. 22859
Fredrikson & Byron, P.A.
200 South Sixth Street, Suite 4000
Minneapolis, MN 55402-1425 USA
Telephone: (612) 492-7000
Facsimile: (612) 492-7077